

REMARKS

The Examiner has finally rejected claims 1-7 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,742,689 to Tucker et al.

The Tucker et al. patent discloses a method and device for processing a multichannel signal for use with a headphone, in which multi-channel audio signals, each channel corresponding to a loudspeaker placed in a particular location in a room, are processed in such a way as to create, over headphones, the sensation of multiple "phantom" loudspeakers placed throughout the room. Head Related Transfer Functions (HRTFs) are chosen according to the elevation and azimuth of each intended loudspeaker relative to the listener, each channel being filtered with an HRTF such that when combined into left and right channels and played over headphones, the listener senses that the sound is actually produced by phantom loudspeakers placed throughout the "virtual" room.

As noted in MPEP § 2131, it is well-founded that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Further, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an ipsissimis verbis test, i.e., identity of

terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

The Examiner, referencing col. 4, line 45 to col. 5, line 35, has indicated that Tucker et al. discloses "means (11) for determining for each signal in the second set of sound signals, a weighted (such as, 16-19 scaling factor) relation comprising at least one signal from a third set of intermediate sound signals (58) and at least one weight value (16, scaling factor)". Applicants submit that the Examiner is mistaken. In particular, item 11 in Tucker et al. is an HRTF processor for processing an input signal (e.g., the "right" signal 8 with an HRTF. While the output from HRTF 11 is applied to a scaler 17, this does not comport with the claimed limitation in which each signal in the second set of sound signals is determined by a weighted relation including at least one signal from a third set of intermediate sound signals and at least one weight value.

The Examiner has indicated that Tucker et al. discloses "means (10) for determining a first set of Head Related Transfer Functions based on the second set of sound signals (11), the second set of Head Related Transfer Functions and the weighted relation". Applicants submit that the Examiner is mistaken. In particular, item 10 is HRTF processor for the left speaker, while item 11 is the HRTF processor for the right speaker. There is no disclosure or suggestion in Tucker et al. that the HRTF processor 10 is based or determined, at least in part, on the HRTF processor 11. In

particular, Tucker et al. at col. 4, line 65 to col. 5, line 10, states:

"In an exemplary embodiment of the present invention, the best match set of HRTFs are selected from an ordered set of HRTFs stored in ROM 65 via the HRTF matching processor 59 and routed to the appropriate HRTF processor 10, 11, 12, 13 and 14.

"Prior to the listener selecting a best match set of HRTFs, sets of HRTFs stored in the HRTF database 63 are processed by an HRTF ordering processor 64 such that they may be stored in ROM 65 in an order sequence to optimize the matching process via HRTF matching processor 59. Once the optimal pair of HRTFs have been selected by the listener, separate HRTFs are applied for the right and left ears, converting each input channel to dual channel output."

Applicants stress that the HRTFs used in the HRTF processors of Tucker et al. are selected from a set of HRTFs. There is no disclosure of a first set of Head Related Transfer Functions being determined "based on the second set of sound signals (11), the second set of Head Related Transfer Functions and the weighted relation". It should be noted that Head Related Transfer Functions (HRTFs) operate on sound signals and are not the output sound signals. This is explained in Tucker et al. at col. 4, lines 55-57, which states "Processing of each channel is accomplished through digital filtering using sets of HRTF coefficients, for example, via HRTF processing circuits 10, 11, 12, 13 and 14." Hence, contrary to the Examiner's interpretation, the means 10 of Tucker et al. does not determine a first set of Head Related Transfer Functions, but rather operates on a sound signal using a HRTF to produce an output signal.

In addition, the Examiner has indicated that Tucker et al. discloses "means (11) for transferring at least one signal from the third set of intermediate sound signals (58) by means (11) of at least one HRTF from said first set of Head Related Transfer Functions in order to generate at least one output (30) signal belonging to said first set of sound signals (10 and see col. 4 line 45-col. 5 line 35)." Again, Applicants submit that the Examiner is mistaken, in that there is no disclosure of a first set of HRTFs determined, at least in part, from a second set of HRTFs, and that the first set of HRTFs are applied to at least one signal from a third set of intermediate sound signals to form at least one output signal.

The Examiner further adds:

"It is noted that in Tucker, the interactions of various sets of HRTFs are carried out through the operation of the HRTF database 63, as well as the ordering processor 64 and matching processor 58. Tucker collects and stores, in database 63, sets of HRTFs (both left and right configurations) from the listeners. Such HRTFs are subsequently selected and incorporated into the weighing/scaling processing to produce the output left and right values. See, for example, fig.s 4, 6c, col. 4, line 45 - col. 5, line 35; col. 7, lines 10-15, 36-47; col. 9, lines 30-54."

Applicants submit, however, that there is no disclosure or suggestion in Tucker et al. that the HRTF database 63, the ordering processor 64 and the matching processor 58 determines "a first set of Head Related Transfer Functions based on the second set of sound signals (11), the second set of Head Related Transfer Functions and the weighted relation".

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1-7, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by /Edward W. Goodman/
Edward W. Goodman, Reg. 28,613
Attorney
Tel.: 914-333-9611